

Polymers and Polymerization

USSR

UDC 54-171:541.64+661.718.1

BYL'YEV, V. A., LAPIN, M. S., and MUSLINKIN, A. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Comparative Thermostability of Polymers of Acrylic and Some  $\alpha$ -Substituted Acrylic Derivatives of Triphenylphosphine Oxide"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 71, pp 1801-1803

Abstract: The article describes results of a comparative estimate of the thermostability of polymers of acrylic, methacrylic and  $\alpha$ -fluoroacrylic derivatives of triphenylphosphine oxide with allowance for the effect of isomerism in the structure of the initial monomers on the kinetics of polymer thermal decomposition. A comparison of polymers based on p-isomers and polyphenyl methacrylate indicates that thermal degradation of phosphorus-containing polymers proceeds more slowly and encompasses the higher temperature region, with poly-p-fluoroacryloylhydroxyphenyldiphenylphosphine oxide showing the least thermostability. A comparison of the character of the thermal and thermooxidizing decomposition of polymers based on o-, m- and p-isomers of  $\alpha$ -fluoroacryloylhydroxyphenyldiphenylphosphine oxide shows that the decomposition of the o-derivative polymer proceeds at a lower temperature than for p- and m-derivative polymers.

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UDC: 621.787

(2)

BURNAKOV, K. K., SMIRNOV, M. A., BRAZGIN, I. A., BYPRYAZHKIN, V. P., NABIULLIN, N. M., TOLSTOV, A. M., Kurgan

"High Temperature Thermomechanical Treatment of EI 811 Stainless Steel"

Izvestiya Akademii Nauk SSSR, Metally, No 4, Jul-Aug 73, pp 129-131.

Abstract: This work studied the possibility of increasing the strength of EI 811 steel by high temperature heat and mechanical treatment. The studies were performed using a steel of the following composition: 0.13% C, 0.33% Mn, 0.37% Si, 0.023% P, 0.077% S, 5.7% Ni, 21.1% Cr, 0.43% Ti, Fe -- remainder. The material was plastically deformed by rolling at 1100-900° C, 30% compression, velocity 4.3 m/min. Specimens 20 mm in diameter and 150 mm long were heated to 1000 or 1100° C, held 30 minutes, then deformed at these temperatures with subsequent immediate quenching in water. Specimens heated to 1000° C were allowed to cool in air to 900° C, then rolled at that temperature and held 5 minutes at that temperature before quenching. It was found that the selection of the temperature mode for plastic deformation must be based on consideration of the different tendencies of the ferritic and austenitic components toward softening. The strength characteristics of this steel were increased significantly only after deformation at 900° C, which causes

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Burnakov, K. K., Smirnov, M. A., Brazgin, I. A., Bypryazhkin, V. P.,  
Nabiullin, N. M., Tolstov, A. M., Izvestiya Akademii Nauk SSSR, Metally,  
No 4, Jul-Aug 73, pp 129-131. (2)

hardening of both the  $\gamma$  and  $\alpha$  phases. The  $\gamma \rightarrow \alpha$  conversion occurring during  
aging at 650-700° C has no significant influence on the hardening effect  
achieved by high temperature heat and mechanical treatment.

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- 48 -

1/2 041  
UNCLASSIFIED  
TITLE--ELECTRON DISTRIBUTION FUNCTION IN A KNUDSEN DISCHARGE PLASMA IN  
ARGON -U-  
PROCESSING DATE--20NOV70  
AUTHOR--(03)-BYRDIN, YU.A., BYRDINA, T.G., KARETNIKOV, D.V.  
COUNTRY OF INFO--USSR  
SOURCE--TEPLIFIZ. VYS. TEMP. 1970, 8(2), 246-51  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, ENERGY CONVERSION (NON-PROPULSIVE)  
TOPIC TAGS--ARGON, DISCHARGE PLASMA, THERMIONIC ENERGY CONVERSION,  
ELECTRON DISTRIBUTION, ELECTRON BEAM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/1411  
STEP NO--UR/0294/70/008/002/0246/0251  
CIRC ACCESSION NO--AP0133363  
UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133363

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTRON DISTRIBUTION FUNCTION IN A KNUDSEN ARC PLASMA IN AR WAS MEASURED BY THE METHOD OF DOUBLY DIFFERENTIATED PROBE CHARACTERISTICS OF A PLANE PARALLEL DIODE. THE CIRCUIT SCHEME FOR THE DOUBLE DIFFERENTIATION IS SHOWN. THIS METHOD ALSO ENABLES ONE TO DET. PLASMA PARAMETERS. AN EXCESS OF FAST ELECTRONS WAS FOUND IN THE PLASMA IN COMPARISON WITH THE MAXWELL DISTRIBUTION. THE PRESENCE OF ELECTRONS WITH HIGHER ENERGIES, EXCEEDING THE NEAR CATHODE BARRIER, CONFIRMS A STRONG INTERACTION BETWEEN THE ELECTRON BEAM AND PLASMA OSCILLATIONS. THIS MECHANISM MAY TAKE PLACE IN THERMIONIC ENERGY CONVERTERS OPERATED IN THE ARC MODE. FACILITY: INST. AT. ENERG. IM. KURCHATOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 041 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ELECTRON DISTRIBUTION FUNCTION IN A KNUDSEN DISCHARGE PLASMA IN  
ARGON -U-  
AUTHOR-(G3)-BYRDIN, YU.A., BYRDINA, I.G., KARETNIKOV, D.V.  
COUNTRY OF INFO--USSR  
SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(2), 246-51  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, ENERGY CONVERSION (NON-PROPULSIVE)  
TOPIC TAGS--ARGON, DISCHARGE PLASMA, THERMIONIC ENERGY CONVERSION,  
ELECTRON DISTRIBUTION, ELECTRON BEAM  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--3005/1411 STEP NO--UR/0294/70/008/002/0246/0251  
CIRC ACCESSION NO--AP0133363  
UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133363

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTRON DISTRIBUTION FUNCTION IN A KNUDSEN ARE PLASMA IN AR WAS MEASURED BY THE METHOD OF DOUBLY DIFFERENTIATED PROBE CHARACTERISTICS OF A PLANE PARALLEL DIODE. THE CIRCUIT SCHEME FOR THE DOUBLE DIFFERENTIATION IS SHOWN. THIS METHOD ALSO ENABLES ONE TO DET. PLASMA PARAMETERS. AN EXCESS OF FAST ELECTRONS WAS FOUND IN THE PLASMA IN COMPARISON WITH THE MAXWELL DISTRIBUTION. THE PRESENCE OF ELECTRONS WITH HIGHER ENERGIES, EXCEEDING THE NEAR CATHODE BARRIER, CONFIRMS A STRONG INTERACTION BETWEEN THE ELECTRON BEAM AND PLASMA OSCILLATIONS. THIS MECHANISM MAY TAKE PLACE IN THERMIONIC ENERGY CONVERTERS OPERATED IN THE ARC MODE. FACILITY: INST. AT. ENERG. IM. KURCHATOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--NATURE OF ACTIVE CENTERS DURING BUTADIENE POLYMERIZATION ON COBALT  
CATALYSTS -U-  
AUTHOR-(04)-DYRIKHIN, V.S., FEDOROV, N.P., ALEKSANDROVSKAYA, O.I.,  
MEDVEDEV, S.S.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(30, 589-92  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--BUTADIENE, POLYMERIZATION, COBALT COMPLEX, CATALYST, ALUMINUM  
COMPOUND, THIOPHENE, POLYBUTADIENE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3005/0224 STEP NO--UR/0020/70/191/003/0589/0592  
CIRC ACCESSION NO--AT0132496  
UNCLASSIFIED



2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0132496

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC STUDIES REVEALED THAT ONE OF THE LIGANDS FROM THE CO(ALCL SUB4)SUB2 COMPLEX WERE READILY SUBSTITUTED BY ALCL SUB3 THIOPHENE (I) TO GIVE A CATALYST CAPABLE OF INITIATING CIS 1,4 POLYMN. OF BUTADIENE. THE MOL. WT. OF POLYBUTADIENE INCREASED WHENEVER THE CONCN. OF COCL SUB2 ALCL SUB3 I WAS INCREASED, PRESUMABLY DUE TO HIGHER CONCN. OF THE CATALYST AND OF ALCL SUB3 I, WHICH WAS ALWAYS FORMED ALONG WITH THE CATALYST. FACILITY: MOSK. INST TCNKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/3 - 013  
UNCLASSIFIED  
TITLE--ALPHA-(DITHIOCARBOXY)AMINO ACID AS MASKING REAGENTS -U-  
PROCESSING DATE--09OCT70  
AUTHOR--(04)-BUSEV, A.I., BYRKO, V.M., KOVTUN, N.P., KARALASHVILI, L.G.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 237-42  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC SULFUR COMPOUND, AMINO ACID, HYDROGEN SULFIDE, CARBON  
DISULFIDE, COPPER COMPLEX, COBALT COMPLEX, METAL COMPLEX COMPOUND,  
PHOTOMETRIC ANALYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1993/0925  
STEP NO--UR/0075/70/025/002/0237/0242  
CIRC ACCESSION NO--AP0113760  
UNCLASSIFIED

2/3 013

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113760

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. N-(DITHIOCARBOXY-N-METHYLGLYCINE DI-NH SUB4 SALT (I), A DI-NH SUB4 SALT OF N-(DITHIOCARBOXY)SARCOSINE, WAS SYNTHESIZED AND SUGGESTED FOR MASKING OF A NO. OF ELEMENTS OF THE H SUB2 S AND (NH SUB4) SUB2 S GROUPS. I IS PREPD. BY ADDING CS SUB2 TO AN AQ.-AMMONIACAL SOLN. OF SARCOSINE. NONREACTED CS SUB2 WAS EXTD. WITH PHME, ETHOH WAS ADDED TO CRYSTALLIZE I, DECOMP. 139DEGREES, SOL. IN H SUB2 O, LESS SOL. IN ALC. AND CHCL SUB3. I REACTS WITH CU(II) IN A 2:1 RATIO TO FORM A COLORED COMPLEX WITH MAX. ABSORBANCE AT 440 M MU, WITH NI(II) IN THE SAME RATIO WITH A MAX. AT 350 M MU. CO REACTS WITH I IN A 1:3 RATIO; THE COMPLEX HAS MAX. ABSORBANCE AT 320 M MU. ZN(II), GA(III), CR(III), MG(II), SB(III), AS(III), NB(V), AND W(VI) DO NOT FORM PPTS. OR COLORED COMPLEXES WITH I. A COMPLEXOMETRIC METHOD WAS DEVELOPED FOR THE DETN. OF GA WITH 4-(2-PYRIDYLAZO)RESORCINOL (II) AT PH 2-3. CD, IN, AND BI ARE MASKED WITH I AND DO NOT INTERFERE IN THE DETN. AL, BA, CA AND MG DO NOT INTERFERE. NEUTRALIZE THE SOLN. WITH M NAOH, ADJUST TO PH 2-3 WITH N HOAC, THEN ADD A 25 FOLD EXCESS OF I COMPARED TO THE ELEMENT THAT INTERFERES, 2-3 DROPS OF II AND TITRATE WITH COMPLEXON III FROM RED TO YELLOW. A PHOTOMETRIC METHOD WAS DEVELOPED FOR THE DETN. OF GA WITH II WITHOUT SEPN. OF IN. ADJUST THE SOLN. CONTG. GA AND IN TO PH 3.25 WITH AN NH SUB4 OAC BUFFER, ADD 1 ML 5PERCENT AQ. I, THEN 1.25 ML II, AND DIL. TO 25 ML WITH THE BUFFER. MEASURE THE ABSORBANCE PHOTOMETRICALLY BY USING A GREEN FILTER. AN EXTN. PHOTOMETRIC METHOD WAS DEVELOPED FOR W DETN. WITH RHODAMINE B (III); MO INTERFERENCE IS ELIMINATED BY MASKING WITH I.

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PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0113760

ABSTRACT/EXTRACT--ADD TO THE SOLN. CONTG. W AND MO 15 ML 0.15N HCL, 20-30  
MG I, AND 5 ML 0.1PERCENT III SOLN. EXT. W WITH 2 50 ML PORTIONS OF  
CHCL 3. COMBINE THE EXTS., WASH TWICE WITH 15 ML 0.15N HCL AND AGAIN  
EXT. WITH 5 ML CHCL SUB3. DIL. THE COMBINED ORG. LAYERS TO 100 ML WITH  
ISDAMYL ALC. AND DET. PHOTOMETRICALLY BY USING A NO. 4 FILTER.  
FACILITY: MOSCOW STATE UNIV., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 612.35.014-482

ZAKHARIYEVA, Z. and BYRZEVA, L., I. P. Pavlov Higher Medical Institute,  
Plovdiv, Bulgaria

"Sensitivity of the Liver to Whole-Body Irradiation"

Moscow, Meditsinskaya Radiologiya, No 3, 1972, pp 58-64

Abstract: Whole-body irradiation of rabbits produced functional changes in the liver whether the animals were exposed once to a single dose of 1000 r or to daily doses of 25 r for 30 days. Seven days after the animals received 1000 r, total proteins, serum cholinesterase and glutamic-oxalacetic transaminase activities decreased. On day 15, the total proteins regained the original level, glutamic-oxalacetic and glutamic-pyruvic transaminase activities and content of beta lipoproteins increased while cholinesterase activity remained low. In the animals irradiated for 30 days, total proteins decreased (mainly because of the albumins, although the gamma globulins increased somewhat) as did cholinesterase activity, but the level of transaminase activities rose sharply. The fixation and clearance functions of the liver were more impaired in the chronically irradiated animals.

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Acc. Nr: **AP0051910**

Ref. Code: **UR 0219**

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i  
Meditsiny, 1970, Vol **69**, Nr **2**, pp **28-32**  
POSSIBLE MECHANISM GOVERNING INHIBITION OF THE PHYSIOLOGICAL  
ANTICOAGULATION SYSTEM IN A LONG-TERM EFFECT OF SOUND

L. V. Mikhaylova, A. Sh. Byshevskiy  
Zaporozhie Medical Institute

Experiments staged on 152 albino rats exposed to the effect of sound (94—96 dB, 2000 cps) for various periods of time (from 30 min. to 10 days) ascertained that 15 minutes after starting application of sound the coagulation potential of the blood progressively increases (which involves diminution of recalcification time, higher plasma tolerance to heparin, rising thromboplastin activity, reduced antithromboplastin and antithrombin II, III and IV activity, inhibition of fibrinogenolysis and fibrinolysis). Subsequently, both after ceasing and with continued application of sound these indices returned to normal and an excess activation of the fibrinolytic system was noted. Analogous phasic changes recurred after 2-days of sound application. The authors suggest considering inhibition of the anticoagulation system, earlier observed by them in long-term application of sound, to be the consequence of its exhaustion occurring due to periodic activation in the course of sound application.

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REEL/FRAME  
**19820393**

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1/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

TITLE--VITAMIN B SUB15 AND METHIONINE ACTION ON THE LEVEL OF PRO AND ANTI  
COAGULANTS IN EXPERIMENTAL HYPERCHOLISTERINEMIA -U-  
AUTHOR--(02)-KAPTYUKH, R.F., BYSHEVSKIY, A.SH.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PITANIYA, 1970, NR 2, PP 48-51

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VITAMIN B COMPLEX, DIET, METHIONINE, CHOLESTEROL, BLOOD  
COAGULATION, INHIBITION, FIBRINOGEN, FIBRINOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/1638

STEP NO--UR/0244/70/000/002/0048/0051

CIRC ACCESSION NO--AP0101693

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0101693

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTRODUCTION OF VITAMIN B SUB15 AND METHIONINE (5 MG AND 6.7 MG PER 100 G OF BODY WEIGHT) TOGETHER WITH A STANDARD RATION CONTAINING CHOLESTEROL AND 6 METHYLURACIL WAS APT TO STRENGTHEN SOMEWHAT THE TENDENCY TOWARDS HYPERCOAGULATION OBSERVED IN ANIMALS. ADMINISTRATION OF VITAMIN B SUB15 IN A DOSE OF 20 MG-100 G TOGETHER WITH THE SAME RATION MITIGATED SYMPTOMS OF INHIBITED ANTICOAGULATION SYSTEM, NOT ONLY HINDERING SUPPRESSION OF THE FIBRINOLYTIC AND FIBRINOGENOLYTIC ACTIVITY, BUT ALSO RAISING IT, AS COMPARED TO CONTROLS RECEIVING NO PANGAMATE. GIVEN IN AN ADEQUATE DOSE (26.8 MG-100 G) METHIONINE INTRODUCED WITH THE RATION CONTAINING CHOLESTEROL AND 6 METHYLURACIL DID NOT PRODUCE ANY SUBSTANTIAL CHANGES IN THE COAGULATION SYSTEM. IT IS ASSUMED THAT LOW DOSES OF VITAMIN B SUB15 AND METHIONINE GIVE RISE TO SIMILARLY ORIENTED CHANGES IN THE HEMOCOAGULATION SYSTEM, THIS BEING DUE TO THEIR PARTICIPATION IN THE TRANSMETHYLATION PROCESSES. THE FIBRINOLYTIC EFFECT OF HIGH VITAMIN B SUB15 DOSES IS TO BE ASCRIBED TO ITS INHIBITING ACTION OF THE ANTIPLASMIN.

UNCLASSIFIED



USSR

UDC: 612.115.38-06:612.014.45

MIKHAYLOVA, L.V. and BYSHEVSKIY, A.SH., Chair of Biochemistry, Zaporozhe Medical Institute

"Depression of the Anticoagulation System Following Prolonged Exposure to Sound"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 2, 1970, pp 28-32

Abstract: Experiments on rats exposed to sound (94-96 db, 2 kHz, 30 min to 10 days) revealed signs of hypercoagulation (judging by the recalcification time, heparin tolerance of plasma, prothrombin utilization, prothrombin time, antithromboplastin activity, etc) within 30 min of exposure. This was followed by activation of the fibrinolytic system, both with continuation of the sound and after its cessation. Similar phase shifts were observed after two days of exposure. The depression of the anticoagulation system is attributed to its exhaustion resulting from periodic activation in the course of exposure to sound.

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USSR

UDC 666.3.022.64

PAVLOV, V. F. (Candidate of Technical Sciences), BYSTRIKOV, A. S. (Candidate of Technical Sciences), and ANDREYEVA, N. I. (Engineer), NIISTroykeramika

"Effect of Impurities  $\text{Li}_2\text{O}$ ,  $\text{Na}_2\text{O}$  and  $\text{K}_2\text{O}$  on Phase Transformations. During Firing of Clays of Different Mineralogical Composition"

Moscow, Steklo i Keramika, No 2, Feb 70, pp 38-40

Abstract: The article presents results of an investigation of the effect of alkali oxides on phase transformations during firing of clays of different mineralogical composition. The clays were of the following mineralogical composition: kamenskaya -- kaolinite; vladimirovskaya -- montmorillonite-kaolinite; tselinogradskaya -- kaolinite-hydromica. Impurities were introduced in the form of carbonates in 2% quantities converted to oxides. The impurities were thoroughly mixed with clay. Specimens in the form of disks 18 mm in diameter and 4-5 mm thick were formed from the prepared mixtures. The specimens were fired in a shielded silit (silicon carbide) furnace at the temperature 1050-1300° and they are cooled together with the furnace. It is shown that the cristobalitizing and mullitizing action of the impurities depends on the mineralogical composition of the clays. It is established that with the increase in the weight and radius of cation its cristobalitizing action decreases. The alkali cations have similar effect on the process of mullitization.

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Acc. Nr.

AP0113203

Abstracting Service:  
CHEMICAL ABST.

B

6/10

Ref. Code

UR0072

135906g Influence of lithium oxide, sodium oxide, and potassium oxide additives on phase transformations taking place during the firing of clays of various mineralogical compositions. Paylov, V. E.; Bystrikov, A. S.; Andreeva, N. I. (USSR). *Steklo Keram.* 1970, 27(2), 38-40 (Russ). The results of investigating the effect of  $\text{Li}_2\text{O}$ ,  $\text{Na}_2\text{O}$ , and  $\text{K}_2\text{O}$  on phase transformations of clays are given. These addns. were introduced in 2% amts. The samples were fired in a shielded Silit furnace at a temp. of 1050-1300°, whereupon they were cooled in the furnace. The fired samples were investigated by x-ray diffraction with a URS-50I instrument and Cu-radiation (Ni-filter). Samples of rock kaolinite clay without addns. consist of an amorphous phase and quartz. Addn. of  $\text{Li}_2\text{O}$  produces intensification of the process of crystn. of mullite and cristobalite. The  $\text{Na}_2\text{O}$  addn. has a similar effect, except to a lesser degree. Similar results are obtained for clays of other compns. Samples with  $\text{K}_2\text{O}$  addns. do not show the presence of cristobalite. It is thus shown that addns. of  $\text{Li}_2\text{O}$ ,  $\text{Na}_2\text{O}$ , and  $\text{K}_2\text{O}$  have a marked effect on the multilization process, by decreasing the temp. of formation of mullite and by somewhat increasing its content. It is thus con-

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19930270

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cluded from the expts. performed that the influence of the alkali oxides on phase transformations during firing of clays depends on the mineralogical compn. of the latter. The effect of alkali oxides on the formation process of cristobalite during the firing of kaolinite clays decreases in the following order:  $\text{Li}_2\text{O} > \text{Na}_2\text{O} > \text{K}_2\text{O}$ . The same order is observed with respect to mullitization.

S. A. Mersol

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USSR

UDC 621.791.93:669.017,1:620.168.3

BYSTROV, V. A., Engineer; BYSTROV, A. V., Candidates of Technical Sciences, Dneprodzerzhinskiy Industrial Institute imeni M. I. Arsenichev; BURKSER, L. D., Engineer, and GOL'DMAN, L. D., Engineer, Dneprovskiy Metallurgical Plant imeni F. E. Dzerzhinskiy

"Electroslag Surfacing of Composites"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 74, pp 14-15

Abstract: Results are presented from attempts to develop an electroslag surfacing method which would make it possible to increase the wear resistance of the surfaced metal by adding cast carbides and protecting them from dissolution, i.e., to produce a composite alloy by electroslag surfacing. The scheme of the device used for electroslag surfacing is illustrated and data are given on the microhardness of the surfacing metal and base metal after surfacing (1900-2600 and 580-760 kgf/mm<sup>2</sup>, respectively. No mention is made of the materials used for the base metal and surfacing metal materials, but it was stated that, from wear tests (gas-abrasive wear), a composite alloy had been produced. Four figures, four bibliographic references.

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UDC 539.192/.194+535.33/.34.01

BYSTROV, D. S.

"Problem of the Solution of the Reverse Problem in the Theory of Vibrational Spectra of Inorganic and Complex Compounds"

V sb. Kolebatel'n. spektry v neorgan. khimii (Vibrational Spectra in Inorganic Chemistry -- Collection of Works), Moscow, "Nauka," 1971, pp 12-26 (from RZh-Fizika, No 5, May 71, Abstract No 5D133)

Translation: The reverse vibrational problem, determining the potential functions of a molecule on the basis of vibrational spectra data, has a unique solution in the simplest cases characterized by secular equations of no higher than the third degree under the condition that along with vibrational frequencies one can use data on the magnitudes of vibrational-rotational interaction constants or mean square amplitudes of vibrations. Problems of the application of the theory of vibrational spectra of molecules are discussed for questions in which there is no basis for assuming that one can obtain a unique solution to the reverse vibrational problem; methods for investigating the set of solutions are discussed. A summary of force constants of the

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BYSTROV, D. S., Kolebatel'n. spektry v neorgan. khimii

simplest inorganic molecules, the potential functions of which are uniquely determined, is given.

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Nuclear Science and Technology

USSR

UDC 534.9.019.3

BYSTROV, L. N., IVANOV, L. I., PLATOV, YU. M., Moscow

"Radiation Diffusion Mechanisms in Metals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb  
70, pp 14-22

Abstract: The authors review existing theories of the radiation amplification of diffusion in metals, on the thesis that currently used models of stationary radiation diffusion as governed by movement of radiation vacancies are not justified. It is demonstrated that in the temperature range where interstitial atoms are mobile and vacancies immobile, the process of radiation diffusion is necessarily nonstationary. Given a constant rate of introduction of radiation defects, the radiation diffusion coefficient will diminish monotonically from the accumulation of vacancies, and in samples where there is a fairly high concentration of constantly active dislocations

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BYSTROV, L. N., IVANOV, L. I., Fizika i Khimiya Obrabotki  
Materialov, No 1, Jan-Feb 70, pp 14-22

this effect will be quite marked. On this basis, an equation  
for the coefficient of nonstationary interstitial radiation  
diffusion is derived.

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1/2 022 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--MECHANISMS OF RADIATION DIFFUSION IN METAL -U-  
AUTHOR--BYSTROV, L.N., IVANOV, L.I., PLATOV, YU.M.  
COUNTRY OF INFO--USSR **B**  
SOURCE--FIZ. KHIM. ORRAB. MATER. 1970, (1) 14-22  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--CRYSTAL DISLOCATION, METAL DIFFUSION, CRYSTAL LATTICE VACANCY,  
IRRADIATION  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REFEL/FRAME--1988/0632 STEP NO--UR/0472/73/000/001/0014/0022  
CIRC ACCESSION NO--AP0105611  
UNCLASSIFIED

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PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105611

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BASIS IS FOUND TO BE INADEQUATE FOR THE EXISTING STEADY STATE MODELS OF RADIATION ENHANCED DIFFUSION IN METALS GOVERNED BY THE MIGRATION OF RADIATION PRODUCED VACANCIES. THE DIFFUSION MECHANISM IS ANALYZED IN TERMS OF A PARTICIPATION OF INTERSTITIAL ATOMS IN THE DIFFUSION PROCESS. IN THE TEMP. RANGE IN WHICH MOBILE INTERSTITIAL ATOMS AND AS YET IMMOBILE VACANCIES OCCUR, THE RADIATION DIFFUSION PROCESS MUST BE UNSTEADY STATE. AT A CONST. RATE OF FORMATION OF RADIATION DEFECTS, THE COEFF. OF RADIATION DIFFUSION WILL DECREASE MONOTONICALLY OWING TO AN ACCUMULATION OF VACANCIES (SINKS FOR INTERSTITIAL ATOMS). THIS EFFECT MUST BE INTRINSIC IN SAMPLES CONTG. A SIGNIFICANT CONCN. OF CONSTANTLY ACTING SINKS (DISLOCATIONS) AS THE IMMOBILE VACANCIES ACCUMULATE OWING TO A PREFERENTIAL ANNIHILATION OF A PORTION OF MOBILE INTERSTITIAL ATOMS ON THE DISLOCATIONS RATHER THAN ON THE VACANCIES. AN EQUATION FOR THE COEFF. OF INTERSTITIAL RADIATION DIFFUSION IS INFERRED.

UNCLASSIFIED

USSR

UDC 621.791.93:669.017,1:620.168.3

BYSTROV, V. A., Engineer; BYSTROV, A. V., Candidates of Technical Sciences, Dneprodzerzhinskiy Industrial Institute imeni M. I. Arsenichev; BURKSER, L. D., Engineer, and GOL'DMAN, L. D., Engineer, Dneprovskiy Metallurgical Plant imeni F. E. Dzerzhinskiy

"Electroslag Surfacing of Composites"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 74, pp 14-15

Abstract: Results are presented from attempts to develop an electroslag surfacing method which would make it possible to increase the wear resistance of the surfaced metal by adding cast carbides and protecting them from dissolution, i.e., to produce a composite alloy by electroslag surfacing. The scheme of the device used for electroslag surfacing is illustrated and data are given on the microhardness of the surfacing metal and base metal after surfacing (1900-2600 and 580-760 kgf/mm<sup>2</sup>, respectively. No mention is made of the materials used for the base metal and surfacing metal materials, but it was stated that, from wear tests (gas-abrasive wear), a composite alloy had been produced. Four figures, four bibliographic references.

1/1

Acc. Nr:

AP0100357

Abstracting Service:

CHEMICAL ABST. 6/70 B

Ref. Code:

UR 0062

116523p Effect of the pH of the medium on chemical shifts in the PMR of 3-hydroxypyridine derivatives. Lezina, V. P.; Smirnov, L. D.; Dyumaev, K. M.; Bystrov, V. F. (Inst. Khim. Fiz., Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 25-31 (Russ). The NMR chem. shifts were tabulated for 3-methoxy-2-methylpyridine, 3-hydroxy analog, its 2-nitro and 2-dimethylaminomethyl analogs, as well as 2-methyl-6-diethylaminomethyl-3-hydroxypyridine, its 6-nitro analog and 4-nitro analog as well as selected methiodides. From the chem. shift data the electron distribution in such compds. was estd. for acid, basic and neutral media. The spectra of 2-methyl-3-hydroxypyridine and its N-Me deriv. showed the presence of the bipolar structure component in aq. soln. The Hueckel method of LCAO MO calcn. gave satisfactory values for the bipolar form in comparison with the results of NMR study. Passing from acid to basic medium causes a change in the sequential position of proton signals from 4- and 5-positions of the ring. The internal H bond in 2-dimethylaminomethyl-3-hydroxypyridine affects the chem. shift relation to pH and the dependence of this shift on pH indicates that distinct protonation at the ring N and the sidechain N occurs in such compds.

G. M. Kosolapoff J

REEL/FRAME  
19841777

pn7

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--CONFORMATION OF GRAMICIDIN S AND ITS N, N PRIME DIACETYL DERIVATIVE  
IN SOLUTIONS -U-  
AUTHOR--(05)--OVCHINNIKOV, YU.A., IVANOV, V.T., BYSTROV, V.F., MIROSHNIKOV,  
A.I., SHEPEL, E.N.  
COUNTRY OF INFO--USSR **B**  
SOURCE--BIOCHEM. BIOPHYS. RES. COMMUN. 1970, 39(2), 217-25  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ANTIBIOTIC, MOLECULAR STRUCTURE, IR SPECTRUM, PROTON  
RESONANCE/(U)GRAMICIDIN S ANTIBIOTIC  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0939 STEP NO--US/0000/70/039/002/0217/0225  
CIRC ACCESSION NO--AP0126598  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0126598

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE CONFORMATION OF GRAMICIDIN S (I) AND N, N PRIME DIACETYLGAMICIDIN S (II) WAS STUDIED BY ORD, PMR, AND QUANT. IR METHODS USING SEVERAL DIFFERENT SOLVENTS. THE DATA OBTAINED PROVIDE PROOF OF THE HODGKIN OUGHTON-SCHWYZER BETA PLEATED SHEET TYPE MODEL, FOR WHICH PHI AND PSI COORDINATES ARE GIVEN. I AND II LACK AN INTERNAL CAVITY CAPABLE OF ACCOMMODATING METAL CATIONS, AND ARE UNABLE TO FORM COMPLEXES WITH METAL CATIONS. FACILITY: INST. CHEM. NATUR. PROD., MOSCOW, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SELF ASSOCIATION OF TERT BUTYL AND TERT AMYL HYDROPEROXIDES STUDIED  
BY NMR AND IR SPECTROSCOPIC METHODS -U-  
AUTHOR-(04)-YABLONSKIY, O.P., BYSTROV, V.F., VINOGRADOV, A.N., BELYAYEV,  
V.A.  
COUNTRY OF INFO--USSR  
SOURCE--TEOR. EKSP. KHIM. 1970, 6(1), 116-21  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--HYDROPEROXIDE, NMR SPECTRUM, IR SPECTRUM, DIMERIZATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/1504 STEP NO--UR/0397/70/006/001/0116/0121  
CIRC ACCESSION NO--AP0128899  
UNCLASSIFIED



2/2 023

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0128899

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SELF ASSOCH. OF TERT BUOOH AND  
TERT C SUB5 H SUB11 OOH IN CCL SUB4 TWO PROCESSES WERE FOUND:  
CYCLODIMERIZATION, FOLLOWED BY LINEAR ASSOCH. EQUIL. CONSTS. FOR THESE  
PROCESSES WERE DETD. AND DISCUSSED. FACILITY: NAUCH.-ISSLED.  
INST. MGONOMER. SIN. KAUCH., YAROSLAVL, USSR.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--CIS-TRANS ISOMERISM OF THE PEPTIDE BONDS IN N-METHYLATED ALANINE  
DIPEPTIDES -U-  
AUTHOR--(05)-PORKNOVA, S.L., BYSTROV, V.E., BALASHOVA, T.A., IVANOV, V.T.,  
OVCHINNIKOV, YU.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKADEMIY NAUK SSSR, SER. KHIM. 1970, (4), 825-30.  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ISOMERIZATION, PEPTIDE, CHEMICAL BONDING, NUCLEAR MAGNETIC  
RESONANCE, ACTIVATION ENERGY, STEREOCHEMISTRY, ENTROPY, ENTHALPY,  
ALANINE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3006/1358 STEP NO--UR/0062/70/000/004/0825/0830  
CIRC ACCESSION NO--AP0155032  
UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0155032

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. CIS-TRANS ISOMERISM OF THE N METHYLAMIDE LINK IN DIPEPTIDES OF N METHYLALANINE WAS STUDIED BY NMR SPECTRA AT 21-60 DEGREES; SOME 20 PERCENT OF SUCH PEPTIDES MAINTAIN THE CIS CONFIGURATION. FOR THE ME ESTER OF N ACETYL,D,ALANYL,L,METHYLALANINE,  $\Delta H^\ddagger$  OF CIS TRANS TRANSITION WAS 650 CAL-MOLE,  $\Delta S^\ddagger$  SUB35 MINUS 0.21 E.U. AND  $\Delta F^\ddagger$  SUB35 710 CAL-MOLE. THE TRANS ISOMER POSSESSES THE LOWER VALUES OF FREE ENERGY, ENTHALPY AND ENTROPY OF THE EQUIL. STATE. THE ESTD. ACTIVATION ENERGY OF INTERNAL ROTATION WAS 19.8 KCAL-MOLE FOR THE TRANS AND 18.5 FOR THE CIS FORM. THESE ARE COMPARABLE TO ROTATIONAL BARRIERS IN ET SUB2 NCHD OR ET SUB2 NAC.

FACILITY: INST. KHIM. PRIR. SUEDET., MOSCOW, USSR.

UNCLASSIFIED

**Instrumentation and Equipment**

USSR

UDC 669.7/.053.2(088.8)

BYSTROV, V. I., ZAIKIN, A. P.

"Device for Slaking of Lime"

USSR Author's Certificate No 311877, filed, 30/03/70, published 5/10/71  
(Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract  
No 5 G202 P).

Translation: In order to increase the degree of hydration with minimum losses of CaO and product, a fire grate made of perforated pipe connected to a source of compressed air is installed over the bottom of the upper section of slaking unit; a gate is installed between the sections of the slaking unit, and the lower section is equipped with a pipe for drainage of the slaking vapors.

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1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--SATURATED VAPOR PRESSURE OF MERCURY TELLURIDE -U-  
AUTHOR--(04)-LEVITSKAYA, T.D., VANYUKOV, A.V., KRESTOVNIKOV, A.N., BYSTROV,  
V.P.  
COUNTRY OF INFO--USSR **B**  
SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 559-60  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--MERCURY COMPOUND, TELLURIDE, VAPOR PRESSURE, THERMAL ANALYSIS  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/0834 STEP NO--UR/0363/70/006/003/0559/0560  
CIRC ACCESSION NO--AP0118010  
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118010

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SATD. VAPOR PRESSURE FOR HGTE WAS DETD. OVER COMPNS. CORRESPONDING TO THE HG AND TE BOUNDARIES OF THE HOMOGENEITY REGION, USING THE STATIC COMPENSATION METHOD. THE PRESSURE OVER HGTW ENRICHED WITH HG IS CONSIDERABLY HIGHER THAN THE PRESSURE OVER HGTE ENRICHED WITH TE. THE VAPOR PRESSURE ABOVE HGTE SATD. WITH TE REMAINS CONST. AT 460-560DEGREES INDICATING A CONST. COMPN. OF THE SOLID PHASE; ABOVE THIS POINT, IT BEGINS TO INCREASE, ATTESTING TO ENRICHMENT OF THE SOLID PHASE BY TE AT HIGHER TEMPS. THE HEAT OF FORMATION FOR HGTE IS 16.3 KCAL-MOLE AND THE HEAT OF FUSION, 8.5 KCAL-MOLE. THE M.P. OF HG SUB1-X TE WAS 668DEGREESC, WHICH IN GOOD AGREEMENT WITH THE DTA CURVES; THE CORRESPONDING PRESSURE IS 12.5 ATM. FACILITY: MOSK. INST. STALI SPLAVOV, MOSCOW. USSR.

UNCLASSIFIED

Industrial

USSR

UDC 621.643.411.4

SHMELEVA, I. A., and BYSTROV, V. V.

"The Properties of Seams Produced by Two-Sided Automatic Welding of Pipes, 1420 mm in diam."

Moscow, Stroitel'stvo Truboprovodov, No 4, Apr 72, pp 16--19

Abstract: The All-Union Scientific Research Institute of Hard Alloys has developed the technology of two-sided automatic welding of swivel joints performed on specialized pipe welding bases of the types BTS-142 and BTS-143. The illustrated method of splitting the edges for automatic welding requires a minimum volume of beaded metal, makes it possible to weld with sufficiently high-tension currents, and secures the required direction of the automatic welding machine on external and internal seams. The welding technology is described and the conditions for producing joints of equal strength to the initial metal are discussed. The characteristics of external and internal seams are indicated and the properties of joints produced by two- and one-sided welds are compared. By the developed welding technology swivel joints of 17 and 20 mm pipe walls of high quality were produced. Four illustr., five tables, five biblio. refs.

USSR

UDC 621.385.632

BYSTROV, V.V., GAVRILOV, V.L.

"Bench For Tests In A Dynamic Regime Of TWTs Of The Millimeter Wave-Length Band"

Elektron. tekhnika. Nauchno-tekhn.sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific-Technical Collection. Technology And Organization Of Production), 1970, Issue 5(37), pp 87-90 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A179)

Translation: The bench makes it possible to measure the most important characteristics of traveling-wave tubes under conditions of serial production: voltage standing-wave ratio of the input and output, and dependence of the amplification factor on the frequency and output power. Measurement of the indicated characteristics of a TWT is accomplished at one working position. 5 ref. Summary.

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BYSTROV, Z.

SO: JPRS 52850  
09 APR 71

ACTIVITIES OF AGRICULTURAL SCIENTIFIC RESEARCH INSTITUTE

Article by Z. Bystrov, Moscow, Komsomol'skaya Pravda, Russian, 17 February 1971, p 1.

The Krasnodar Scientific Research Institute of Agriculture is one of the leading selection centers in our country. Recently it was given a high Government award for its noteworthy achievements.

Konstantin Zima, director of the laboratory for the selection of early-ripening corn, as a student of the Krasnodar Agricultural Institute, he did his practice here. Then academician M. I. Vavilov invited him to work with him. Mikheyev then planted a selective collection. It included kernels from thirty lysigenous corns rich in nutritional properties. The academician assigned Konstantin Zima the task of caring for them.

Five years have passed since that day. Similar results were started a little earlier in America. However, the Krasnodar Institute closed the gap long ago. Six of the best early-ripening hybrids of corn were transferred to a government commission for testing. The stalks and cobs of the early have already produced new corn from the seed and the crop has been harvested here and there. In the Krasnodar Province, where they have been fed this grain, the yield increase was unusual.

Just imagine how much bread the country has received, thanks to the new types of wheat which got their start in the fields of the Krasnodar Scientific Research Institute of Agriculture. Just between 1951 alone comprises about 40 percent of the planting of winter wheat, which has yielded good harvests. Last year the harvest reached 50 centners

USSR

UDC 615.212.4.015:/612.557-06:612.592.1

BYSTROVA, L. N., and KALININA, N. A., Laboratory of General Pathophysiology of the Division of General Pathology, Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Characteristics of the Action of Antipyretics on the Thermal Regulation Reactions and the Course of Fever in Animals Adapted to Cold"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May/Jun 73, pp 72-73

Abstract: In experiments on rabbits adapted to temperatures of 2-4° for 7-14 days, administration of pyrogenal to the animals induced a more pronounced fever reaction than that in non-adapted controls. The antipyretic action of pyramidon on the cold-adapted rabbits with induced fever was also more pronounced vs. that on non-adapted controls to which pyrogenal had been administered. The thermal regulation centers of the rabbits adapted to cold had apparently a heightened sensitivity to the action of both pyrogens and antipyretics similar to that which had been established for rabbits with hyperthyreosis.

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USSR

UDC: 621.382.2

KURBATOV, L. N., SHAKHIDZHANOV, S. S., BYSTROVA, L. V., KRAPUKHIN, V. V.,  
and KOLONENKOVA, S. I.

"Investigating Superluminescence of a GaAs Diode"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol 4, No 11, 1970, pp 2025-2031

Abstract: To investigate possible means of increasing the power in the point glow of the GaAs diode junction, the authors used an injection diode operating in the nonlinear mode of a traveling wave amplifier. This diode, termed a superluminescence diode by the authors, has no external radiation sources; its illumination power is the result of amplification of its spontaneous, characteristic radiation. Details of the construction of the diode together with a diagram of its cross section are given. The diodes investigated by the authors were obtained by the diffusion of zinc in an n-type substrate alloyed with tellurium. Also discussed are the measurement techniques, which were conducted at the temperature of liquid nitrogen, the mapping of the near and far fields, the radiation polarization, the radiation power as a function of the injection current, and the radiation spectra. The authors express their gratitude to Ye. Susov, M. Zargar'yants, et al.

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- 92 -

USSR

UDC: 577.45

BYSTROVA, M. I. and KRASNOVSKIY, A. A., Institute of Biochemistry imeni A. N. Bakh, USSR Academy of Sciences, Moscow

"Photochemical Properties of Various Types of Aggregated Forms of Chlorophyll a and Bacterioviridin"

Moscow, Molekulyarnaya Biologiya, Vol 5, No 2, Mar/Apr 71, pp 291-301

Abstract: Pigment aggregates in photosynthesizing organisms fulfill various photochemical functions in photosynthesis and are distinguished by their inter-molecular interactions. A comparative study was made of the capacity of various types of chlorophyll a and bacterioviridin aggregates to undergo destructive photochemical oxidation and to exert a photosensitizing effect in a water-methanol system, in which two types of pigment forms with different degrees of aggregation and with two sufficiently separated absorption maxima at 670-677 and 712-730 mμ are observed. Chlorophyll a was isolated from nettle leaves and purified by chromatography. Bacterioviridin was extracted by acetone from *Chloropseudomonas ethylica* cells. In colloidal solutions containing methanol, two types of aggregate forms were produced and the thermal stability of these aggregates was

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USSR

BYSTROVA, M. I. and KRASNOVSKIY, A. A., Molekulyarnaya Biologiya, Vol 5, No 2, Mar/Apr 71, pp 291-301

studied. It was found that the long-wavelength forms of the pigments have a greater photooxidation rate than that of the less aggregated short-wavelength forms; this difference in the photooxidation rate increases with increasing temperature (from 5 to 28°C). The photosensitive long-wavelength forms of chlorophyll a are thermally unstable and on warming (to 70°C and more), they are transformed into forms with a lesser degree of aggregation. The long-wavelength forms of bacterioviridin exhibit thermal stability. Both types of aggregates (short-wavelength and long-wavelength) of chlorophyll a and bacterioviridin exhibit the same photosensitizing activity in the methyl red photoreduction of ascorbic acid. The measured quantum yield of this reaction was about 1.5%, which is approximately one order of magnitude lower than the quantum yield of the same reaction in true solutions.

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- 22 -

USSR

UDC 621.397.62

BELYAKOV, B. I., DUGINETS, E. N., BYSTROVA, N. I.

"A Device for Isolating Recognition Signals"

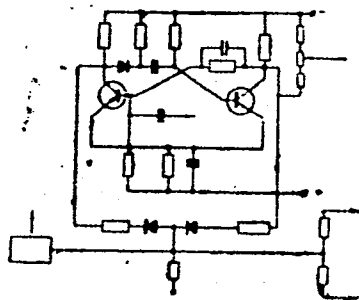
Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 7, Mar 71, Author's Certificate No 295209, Division H, filed 5 May 69, published 4 Feb 71, p 170

Translation: This Author's Certificate introduces a device for isolating a recognition signal for a color television receiver. The device contains an integrating circuit to which signals are sent from the loads of the color-difference signal video amplifiers. The device also includes a switching device such as a slave multivibrator with the load in one arm connected through a diode to the integrating network. As a distinguishing feature of the patent, the reliability of isolating recognition pulses is improved by connecting the second arm of the slave multivibrator to the integrating network through a diode which is connected the opposite way and is shunted by a variable resistor. Voltage is sent from the centertap of this resistor to the limiters of the color-difference channels in the television receiver.

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USSR

BELYAKOV, B. I., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 7, Mar 71, Author's Certificate No 295209, Division H, filed 5 May 69, published 4 Feb 71, p 170



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= 98 =

172 019 UNCLASSIFIED PROCESSING DATE--2300170  
TITLE--DETERMINATION OF THE COORDINATES OF SOME GALACTIC SOURCES OF  
ANOMALOUSLY EXCITED HYDROXYL -U-  
AUTHOR--(05)-RYSTROVA, N.V., GOSACHINSKIY, I.V., YEGOROVA, T.M., KARLOV,  
N.V., KRYNETSKIY, B.B. **B**  
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 791-4

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--ASTRONOMIC OBSERVATORY, COORDINATE, GALAXY, GALACTIC  
RADIATION, HYDROXYL RADICAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/1573

STEP NO--UR/0020/70/191/004/0791/0794

CIRC ACCESSION NO--AT0127069

UNCLASSIFIED



2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0127069

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RIGHT ASCENSIONS OF 4 SOURCES OF OH RADIATION WERE MEASURED IN 1969 IN THE MAIN ASTRONOMIC OBSERVATORY OF THE ACADEMY OF SCIENCES OF THE U.S.S.R. TWO SOURCES OF RADIATION, DETECTED IN 1968, CLOSELY COINCIDED WITH THE NMLCYG AND VYCMa OBJECTS. THE RADIOLINE OF OH IN THESE SOURCES HAD THE HIGHEST INTENSITY AT FREQUENCY OF 1612 MHZ AND ITS PROFILE WAS CHARACTERIZED BY THE PRESENCE OF 2 REGIONS OF RADIATION DIFFERING STRONGLY IN RADIAL VELOCITY. THIS CAN BE RELATED TO ROTATION, EXPANSION, OR COMPRESSION OF A GAS CLOUD. THE POSITION IN EACH RADIAL VELOCITY WAS MEASURED SEP.; RADIATION OF OH LINE WITH RADIAL VELOCITIES OF MINUS 24.2, 18.5, PLUS 21 KM, AND MINUS 10.5, MINUS 6.4, PLUS 45.5, PLUS 49.7, AND PLUS 52.8 KM PER SEC FOR NMLCYG AND VYCMa, RESP. OBSERVATION OF W49 AND SGR-B2 SOURCES WAS MADE AT 1655 MHZ. THE LINE OF OH RADIATION IN THE SGR-B2 SOURCE WAS MEASURED AT RADIAL VELOCITY OF PLUS 67.7 KM PER SEC. FACILITY: RYZHKOV, N. F., FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--RADIO OBSERVATIONS OF SOME DETAILS IN THE H I LOCAL SPIRAL ARM -U-  
AUTHOR--(05)-BYSTROVA, N.V., GOSSACHINSKIY, J.V., TGOROVA, T.M., ROZANOV,  
V.M., RYZHKOV, N.F. *B*  
COUNTRY OF INFO--USSR, SWITZERLAND  
SOURCE--THE SPIRAL STRUCTURE OF OUR GALAXY; PROCEEDINGS OF THE SYMPOSIUM,  
UNIVERSITAT BASEL, BASEL, SWITZERLAND, AUGUST 29-SEPTEMBER 4, 1969.  
DATE PUBLISHED-----70

SUBJECT AREAS--NAVIGATION, ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--RADIO TELESCOPE, SPIRAL GALAXY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO-----FD70/605030/F03 STEP NO--CZ/0000/70/000/038/0169/0172

CIRC ACCESSION NO--AT0141875

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0141875

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF RADIO OBSERVATIONS OF SOME DETAILS IN THE H I LOCAL SPIRAL ARM MADE WITH THE LARGE PULKOV RADIOTELESCOPE (BEAMWIDTH 7 MIN, BANDWIDTH 20, AND 10KHZ). DRIFT CURVES ACROSS THE CLUSTER NGC 2264 AT DIFFERENT VELOCITIES RELATIVE TO THE LSR ARE PRESENTED, AS WELL AS OBSERVED DRIFT CURVES AT DIFFERENT VELOCITIES ACROSS LAMBDA ORIONIS. FACILITY: GLAVNAIA ASTRONOMICHESKAIA, OBSERVATORIIA, PULKOVO, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--HYDRAULIC PRINCIPLES OF BUBBLING -U-

AUTHOR--(05)-PCZIN, L.S., TYLES, V.G., AKSELRCD, L.S., AEROV, M.E.,  
BYSTROVA, T.A.

COUNTRY OF INFO--~~USSR~~

B

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 271-6

DATE PUBLISHED--70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PRESSURE GRADIENT, PRESSURE MEASUREMENT, GAS FLOW, STATIC  
PRESSURE, WATER, TWO PHASE FLOW

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

COPIES REEL/FRA--3005/1649

STEP NO--UR/0153/70/013/002/0271/0276

ARC ACCESSION NO--AT0133554

UNCLASSIFIED

72 - 041

UNCLASSIFIED

PROCESSING DATE--20NOV70

RC ACCESSION NO--AT0133554

STRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM STUDIES OF THE STATIC HEAD OF LIQ. (WATER) AT VARIOUS POINTS ABOVE A 8-MM THICK, 200-MM DIAM. PERFORATED PLATE WITH 31 HOLES OF 3-MM DIAM. AND AT AIR VELOCITIES OF 30-400 M-SEC. THROUGH THE ORIFICES, THE FOLLOWING EQUATION WAS DEVELOPED FOR THE COEFF. K, CHARACTERIZING THE DECREASE IN MEASURABLE STATIC HEAD COMPARED TO THE ACTUAL HEAD:  $\gamma_{\text{SUBL}} (\bar{H}_H \text{ MINUS } \bar{H}) \text{ EQUALS } K (\gamma_{\text{SUBG}} W \text{ SUBO PRIME}^2 - 2G)$ . WHERE  $\gamma_{\text{SUBL}}$  AND  $\gamma_{\text{SUBG}}$  ARE THE DS. OF LIQ. AND GAS,  $\bar{H}_H$  AND  $\bar{H}$  ARE THE EFFECTIVE AND AV. MEASURED STATIC LIQ. HEADS, AND  $W \text{ SUBO}$  IS THE GAS VELOCITY. THE EXPT. VALUES OF K FOR THIS STUDY WAS 0.0167 WHICH COMPARES WELL WITH A CALCD. VALUE OF 0.014, AND WITH OTHER DATA IN THE LITERATURE. FACILITY: MOSK. INST. HIM. MASHINSTR., MOSCOW, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--SOME FACTORS AFFECTING MASS TRANSFER IN THE GAS PHASE ON GRID  
PLATES -U-  
AUTHOR-(03)-KOLTUNOVA, L.N., AEROV, M.W., BYSTROVA, Y.A.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(3), 31-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.  
TOPIC TAGS--MASS TRANSFER, ELECTRON TUBE GRID, GAS PHASE REACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/1751 STEP NO--UR/0065/70/015/003/0031/0033  
CIRC ACCESSION NO--AP0109712  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0109712

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHEN THE DISTANCES BETWEEN THE SLITS WERE REDUCED TO SMALLER THAN OR EQUAL TO MM AND THOSE BETWEEN THE ORIFICES TO SMALLER THAN OR EQUAL TO 5 MM, THE FOAM LAYER FORMED ON GRIDS OR PERFORATED PLATES OF SMALL DIAM., RESP., WAS VERY UNSTABLE, CONTG. EXCESSIVE AMTS. ON GASES. BY PASS GAS STREAMS WERE THUS FORMED, TAKING NO PART IN THE MASS TRANSFER ON THE PLATES AND GREATLY DECREASING THE EFFICIENCY.

UNCLASSIFIED

BYSTROVA, V.A.

1985 57835  
2 Jan 73

- 57 -

However, there have been significant changes in pathology in all economically developed countries. At the present time many deaths are not due to a single illness but to a set of interrelated diseases. One diagnosis no longer properly reflects the pathological processes that caused death. In all such cases the effectiveness of preventive measures will depend on awareness of all circumstances of death and they can be identified only by studying all illnesses listed in the death certificate. For this reason, in recent years, the principle of distinguishing a single cause of death has been deemed unsatisfactory, and the matter arose of replacing it by processing multiple causes of death, i.e. all recorded illnesses and conditions.

In spite of the advances made in the USSR with respect to lowering mortality, its rate is still rather high with reference to some causes. To lower this index more and to work out preventive measures, independent investigation of mortality is needed, both overall and as related to different causes. One of the methods of in-depth investigation of mortality is analysis of multiple causes. Because of the difficulty and complexity of such studies not many have been conducted. Yet the matter of multiple causes of death is the focal issue at all international conferences on death statistics and on revision of classification of diseases, trauma, and causes of death. It arose in view of the flaws in traditional statistics on causes of death based on the principle of differentiating only one chief public health problem in the entire world was infectious disease did meet public health demands for a long time.

The chief objective of Soviet public health is to improve the physical condition of the people, lower morbidity and mortality, and prolong life expectancy.

[Article by V.A. Bystrova, Candidate of Medical Sciences, All-Union Scientific Research Institute of Social Hygiene and Public Health Organization named N.A. Semashko, Moscow, Moscow, Sovetskoye Zdravookhraneniye, Burelan, No 11, 1972, submitted 18 July 1972, pp 52-58]

INVESTIGATION OF MULTIPLE CAUSES OF DEATH

UDC: 616-036.68-02

medical sciences



Pesticides

USSR,

UDC 632.95

BYSTROVA, YE. I., and MIKHNO, T. G.

"Effect of Isopropyl-1 Phenylcarbamate, Isopropyl N-(3-Chlorophenyl)carbamate and Chloroacrylate on the Growth of Seeds and the Isolated Organs of Seeds of Wheat"

V sb. Khim. sredstva zashchity rast. (Chemical Agents for Plant Protection -- collection of works), vyp. 1, Moscow, 1970, pp 247-252 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11N449)

Translation: The authors determine the relative sensitivity to isopropyl phenylcarbamate, isopropyl N-(3-chlorophenyl)carbamate and "chloroacrylate" (O-butyryl-N-carboisopropoxy-N-chlorophenyl-hydroxylamine) of wheat seed, isolated wheat germ, isolated upper buds ("isolated sprouts"), the isolated zone of rudimentary roots of the germ ("isolated first-stage roots"), and root tips of three-day seedlings ("isolated second-stage roots"). The sequences in which the seeds and their isolated organs are arranged with respect to sensitivity to the three herbicides were experimentally determined. In the experiments with isolated sprouts, the least sensitive to all three herbicides were the buds, and the most sensitive were germs. Seeds occupied an intermediate position with respect to sensitivity in experiments with isopropyl phenylcarbamate, but were as sensitive as the sprouts to isopropyl N-(3-

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USSR

BYSTROVA, YE. I., and MIKHNO, T. G., V sb. Khim. sredstva zashchity rast.,  
Vyp 1, Moscow, 1970, pp 247-252

chlorophenyl)carbamate and "chloroacylate." Root parts and seeds followed  
this arrangement of increasing sensitivity to the carbamates: wheat germ >  
isolated second-stage roots > seeds > isolated first-stage roots. The  
order was different in experiments with "chloroacylate": isolated  
second-stage roots > wheat germ > isolated first-stage roots > seeds.

2/2

40

Analysis and Testing

USSR

NERSESYANTS, A. B., ZAKHAROV, Ye. L., (deceased), and BYSTROVA, Z. A., All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and the Electrode Industry

"Gas Chromatographic Analysis of Aluminum and Aluminum Carbide"

Moscow, Zavodskaya Laboratoriya, Vol 36, No 9, 1970, pp 1043-1044

Abstract: A method of gas chromatographic analysis of aluminum and aluminum carbide is proposed for use in industrial aluminum production. The method consists in gas chromatographic analysis of the  $H_2$  and  $CH_4$  separated out during hydrochloric acid decomposition of the sample in a gas volumeter in amounts equivalent to the aluminum and aluminum carbide content. The mechanism of this reaction and the formulas used to calculate the aluminum and aluminum carbide content are presented. A schematic of the VAMI gas volumeter used in the method is illustrated. The accuracy of the method is 3.5 percent for Al and 2.7 percent for  $Al_4C_3$ , and the measurement range is from 100 to 0.1 wt %.

1/1

USSR

SEREDIN, V. G., INZHEVATOVA, M. V., MUKHAMEDOV, S. M., RIVKUS, Yu. Z., and  
BYSTRYY, N. F., Uzbek Anti plague Station

"Testing Cholera Phage With a 'Stamp'"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 11, 1971, pp 75-77

Abstract: The "stamp" is a device to study a number of cholera vibrio strains at the same time. It consists of five aluminum plates connected by cross-pieces. Each plate has five short pins whose distal ends are working surfaces to which phages are applied. The phages to be tested are diluted in test tubes to  $10^{-4}$  and poured into special plates (0.5 to 0.5 ml of each dilution) containing wells arranged in 5 rows of 5 wells each corresponding to the number of pins on the "stamp." The "stamp" is immersed with the pins in alcohol in a Petri dish and heated over an alcohol lamp. It is then dipped into the wells with phage and an impression made on the surface of 0.7% soft agar with the culture under study. After the drops of phage dry, the dishes are incubated for 18 hours. A laboratory technician should be able to apply phage to 300 to 400 dishes in 3 hours.

1/1

USSR

UDC: 621.396.69:621.319.4

BYTIN, L. L., KOSHTAKOV, V. I., SHIROKOV, V. I.

"Investigation of Ceramic Disc Capacitors With Plates Made From Base Metals by Using a Low-Temperature Plasma Jet"

Elektron. tekhnika. Nauchno-tekhn. sb. Tekhnol. i organiz. proiz-va (Electronic Technology. Scientific and Technical Collection. Technology and Organization of Production), 1970, vyp. 4 (36), pp 67-76 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V365)

Translation: The authors present the results of studies of ceramic disc capacitors made on the basis of ceramics grades T-150, T-80, T-40, Ts-70, ST-33, ST-47, ST-75 and UF-53 with plates made by plasma sintering of copper powder with the addition of titanium. The conditions are given for plasma forming of the plates. It is shown that plasma metallizing gives a tearing adhesion strength for the plates to the ceramic of more than  $350 \text{ g/cm}^2$ , and a loss tangent for the capacitors of less than  $12 \cdot 10^{-4}$ . It is shown that the mechanical strength, moisture resistance, capacitance and other characteristics of the capacitors meet State Standards 7159-64 and State Standards 2519-67. Resumé.

1/1

USSR

UDC 533.6.013.42

BYTSAN', Ye. N.

"Free Torsional-Flexural Vibrations of Packet Systems Consisting of Rods Containing Cavities Partially Filled With Liquid"

V sb. Analit. i kachestven. metody teorii differents. uravneniy (Analytical and Quantitative Methods in the Theory of Differential Equations -- Collection of Works), Kiev, 1972, pp 53-61 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V402)

Translation: The natural flexural-torsional oscillations of a system of identical elastic nonhomogeneous rods connected at the ends and having cavities partially filled with liquid are discussed. The problem is reduced to finding the eigenvalues of the system of equations of motion of the rods with additional terms characterizing the elastically connected mass of the liquid. The eigenvalues and the eigenfunctions are found by the method of consecutive approximations. P. I. Zheludev.

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USSR

UDC 517.949.25

BYUKOV, YA. V., ZHIVOGLYADOVA, L. V., SHEVTSOV, YE. I.

"Sufficient Conditions for the Oscillatory Nature of Solutions of Nonlinear Finite-Difference Equations"

Minsk, Differentsial'nyye Uravneniya, Vol IX, No 8, 1973, pp 1523-1524

Abstract: The function  $u(n)$  ( $n = 0, 1, 2, \dots$ ) is called nonoscillatory if there is a number  $n_0$  such that for all  $n \geq n_0$  either  $u(n) > 0$  or  $u(n) < 0$ . Otherwise the function  $u(n)$  is said to be oscillatory.

The conditions of existence of oscillatory solutions of linear finite-difference equations were studied previously [M. A. Skalkina, Izv. vuzov, matematika, No 6, 138-144, 1959; A. L. Teptin, Izv. vuzov, Matematika, No 2, 120-123, 1963; Doklady III Sibirskoy konferentsii po matematike i mekhanike, Tomsk, 1964, pp 164-165; Izv. vuzov, Matematika, No 4, 140-146, 1965; Differents. uravneniya, Vol 1, No 4, 1965; Vol 2, No 11, 1966].

In the present paper a study has been made of the conditions for the oscillatory nature of the solutions of the nonlinear equation

$$\Delta[r(n)\Delta u(n)] + a(n)f[n, u(n), u(n+1)] + F[n, u(n), u(n+1)] = 0,$$

$\Delta v(n) \equiv v(n+1) - v(n) \cdot r(n)$ ,  $a(n)$ ,  $f(n, u, v)$ ,  $F(n, u, v)$  defined in the region  $n = 0, 1, 2, \dots$ ,  $-\infty < u, v < +\infty$ .

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USSR

BYUKOV, YA. V., et al., *Differentsial'nyye Upravneniya*, Vol IX, No 8, 1973, pp 1523-1524

It is assumed everywhere that when  $n \geq n_0$ ;  $u, v > 0$ :

$f(n, u, v) \geq 0$ ;  $f(n, -u, -v) \leq 0$ ;  $F(n, u, v) \geq 0$ ;  $F(n, -u, -v) \leq 0$ .

2/2

- 5 -



USSR

UDC 666.11.01:621.3.019.39

BYURGANOVSKAYA, G. V., Candidate of Technical Science, and VASIL'KOVA, A. A.

"The Radiation-Optical Resistance of Lanthanum Glass"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 1, Jan 72, pp 40-42

Abstract: The influence of the content of lanthanum oxide ( $\text{La}_2\text{O}_3$ ) upon the radiation-induced absorption of cerium-containing silicate and borosilicate glass, irradiated by gamma rays and neutrons, is shown. The addition of 10-50 parts of lanthanum oxide by weight into cerium-containing silicate and borosilicate glass somewhat decreases radiation-induced absorption in the visible region of the spectrum. The formation and destruction of coloration centers in lanthanum glass is subject to the usual rules governing alkali silicate glass. The introduction of 1%  $\text{CeO}_2$  into lanthanum silicate glass and lanthanum borosilicate glass increases their gamma-resistance by a factor of 80 and 10 (for a dose of  $2 \times 10^6$  roentgen). The addition of thirty parts of lanthanum oxide by weight to borosilicate glass changes the structure of the coloration centers that are responsible for absorption in the short-wave region, increasing their similarity to the coloration centers observed in alkali silicate glass. One figure, 1 table, 13 references.

1/1

Glass and Ceramics

USSR

UDC 539.12.04.666.11

BYURGANOVSKAYA, G. V., VASIL'KOVA, A. A., and KASUMOVA, L. N.

"Radio-Optical Properties of High Silica Glass"

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 63-69

Abstract: In studies of the radiation stability of industrial glass it has been noted that the effect of cerium in glass with a relatively high silica content (80 wt %  $\text{SiO}_2$ ) is less effective than in other silicate glasses. In order to investigate this phenomenon, a series of types of glass with systematically varying molecular composition of  $\text{Na}_2\text{O} \cdot \text{SiO}_2$  ( $x = 3, 4, 5, 10, 20$ ) with additions of cerium and iron were fused. It is noted that the "protective" effect of cerium in high-silica glass is low, but increases with an increase in the content of alkali metal oxides in the glass.

The most radiation-stable glass had the composition  $\text{Na}_2\text{O} \cdot 4\text{SiO}_2$  with 1 wt %  $\text{CeO}_2$ . With an increase in silica content in sodium-silicate glass, the proportion of four-valent cerium decreases. In glass with the composition  $\text{Na}_2\text{O} \cdot 20 \text{SiO}_2$ , the absorption band of the  $\text{Ce}^{4+}$  iron was not detected.

The introduction of small additions of  $\text{B}_2\text{O}_3$  or  $\text{Li}_2\text{O}$  into high-silica glass (up to 1 wt %) increased the induced absorption by increasing the structural sensitivity of the glass to radiation at the expense of formation of additional defects.

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USSR

BYURGANOVSKAYA, G. V., et al, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 63-69

The negative difference absorption, connected with the destruction of the centers responsible for the adsorption band in the ultraviolet range of the spectrum of unirradiated glass, passes over to the region of positive values for doses which are larger the more intense these bands. A decrease in the regression coefficient of irradiated glass with an increase in silica content arises from the formation of deeper electron traps in the high-silica glass. This is confirmed by thermoluminescence spectra. Complete data from the experiment are tabulated and illustrated graphically.

2/2

USSR

UDC 629.78.076.8

BYUSHGENS, A. G., SHILOV, A. A.

"Concerning a Dynamic Model of a Parachute and Determining Its Characteristics"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1972, Vol. 3, No. 4, pp 49-58 (from RZh-41. Raketostroyeniye, No 11, Nov 72, Abstract No 11.41.99)

Translation: The equations for the plane motion of a parachute of fixed geometry are considered, taking into account the effects of combined masses of air. Formulas are obtained on the basis of an analysis of the equations for calculating the parameters and characteristics of the parachute under a change in the centering of the system. A frequency analysis method is proposed to determine the aerodynamic and dynamic system parameters necessary for a linear analysis of stability. 5 ill., 7 ref. Resume.

1/1

USSR

UDC 612:797.22

OSTASHKOV, K. V., LARIN, V. V., SOKOLOV'S'KIY, V. S., SAVITS'KIY, V. A., and  
BYUTNER, S. I., Odessa Medical Institute

"Thermography of Aqualungers and Some Indexes of Metabolic Processes Under  
Different Diving Conditions"

Kiev, Fiziologicheskii Zhurnal, No 5, 1972, pp 614-620

Abstract: Thermography of 10 aqualungers age 20 to 24 showed that diving brings about a variety of metabolic changes, the degree varying with the water temperature and pressure, type of outfit worn, respirator, and intensity of the work done. The extent of chilling of the body increases with decreasing temperature and increasing depth of submersion. The heat loss diminishes if the diving is done in a suit of the wet or dry type, if electrical heating is provided, and the aqualunger does physical work. The amount of air and oxygen consumed depends on the water temperature and type of suit. Breathing oxygen results in a greater heat loss, slower respiratory and pulse rates, and higher arterial pressure than does breathing compressed air. The hypothermia caused by submersion shows the signs of a stress reaction: some blood clotting, leukocytosis, and inhibition of serum hydrolase activity.

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1/2 026  
TITLE--PION ELECTROPRODUCTION ON CARBON -U- UNCLASSIFIED  
PROCESSING DATE--30OCT70  
AUTHOR--(05)-TITOV, YU.I., STEPULA, YE.V., AFANSAYEV, N.G., AKHMEROV, R.V.,  
BYVALIN, S.A.  
COUNTRY OF INFO--USSR  
SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(2), 257-65  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--ELECTRON SCATTERING, INELASTIC SCATTERING, HIGH ENERGY  
PARTICLE, CARBON, SECONDARY EMISSION, PION, SPECTRUM ANALYSIS,  
DIFFERENTIAL CROSS SECTION, PARTICLE PRODUCTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/1946  
STEP NO--UR/0185/70/015/002/0257/0265  
CIRC ACCESSION NO--AP0120589  
UNCLASSIFIED..

2/2 026

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120589

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTRA OF INELASTIC E SCATTERING WERE MEASURED AT THE INITIAL ENERGY OF 1150 MEV IN THE ANGULAR RANGE 25-60DEGREES. THE MONOCHROMATIZED BEAM OF E FROM A LINEAR ACCELERATOR FELL ON THE HARD C LAYER 0.02 RADIATION LENGTH THICK. THE SECONDARY PARTICLES WERE ANALYZED BY MEANS OF A MAGNETIC SPECTROMETER; IDENTIFICATION AND COUNTING OF PARTICLES WAS PERFORMED BY THE SHOWER COUNTER CONSISTING OF PB GLASS AND PHOTOMULTIPLIER. EACH SPECTRUM SHOWS 2 PEAKS, ONE OF WHICH IS TREATED AS QUASI ELASTIC SCATTERING AND THE OTHER AS THE PION PRODUCTION ON THE PRIME12 C N. THE PION ELECTROPRODUCTION CROSS SECTION CAN BE DESCRIBED AS A SUM OF CROSS SECTIONS FOR THE ELECTROPRODUCTION OF FREE N. THE DEPENDENCE OF THE CROSS SECTION ON THE 3 MOMENTUM TRANSFER IN THE ELECTROPRODUCTION PEAK ALLOWS THE MAIN REGULARITIES TO BE ESTABLISHED OF THE DELTA SUB1238 ISOBAR ELECTROPRODUCTION OF A FREE RHO. THE MEASUREMENTS LEADS TO THE CONCLUSION THAT THE QUASI ELASTIC SCATTERING AND ELECTROPRODUCTION OF PIONS ON N PLAYS THE DOMINANT ROLE. THE QUANT. AGREEMENT OF THEORY AND EXPTL. RESULTS IS SATISFACTORY ONLY AT SMALL TRANSFERED MOMENTUMS (25 AND 35DEGREES). AT LARGE MOMENTUMS THE PARAMETERS CHARACTERIZING THE DIFFERENCE BETWEEN THE FREE AND NUCLEUS N HAS TO BE TAKEN INTO ACCOUNT.

FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 621.382.2

BYVALYY, V.A., VILISOV, A.A.

"Switching Charge Of Pulse Gallium Arsenide Diode"

V sb. Arsenid galliya (Gallium Arsenide--Collection Of Works), Issue 3, Tomsk, Tomsk University, 1970, pp 272-274 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 43187)

Translation: The switching charge of a pulse GaAs semiconductor diode is investigated. GaAs with a concentration and mobility of electrons of  $7 \cdot 10^{16} \text{ cm}^{-3}$  and  $4070 \text{ cm}^2/\text{v} \cdot \text{sec}$  was used to make the semiconductor diode. After assembly of the semiconductor diode, short pulses ( $\sim 0.5 \text{ sec}$ ) in the forward direction were formed of a half-cycle of industrial frequency current. The dependence is presented of the switching charge of a GaAs semiconductor diode on the forming current. It is shown that the initial forming pulses decreased the magnitude of the switching charge from 2-3 to 0.5--1.5 nanocoulomb. A sharp increase of the switching charge for all the semiconductor diodes was observed with forming currents of  $0.05 \pm 0.15 \text{ amp}$ . Subsequent forming lead to a decrease of the switching charge. The observed changes of the switching charge were explained by a modification of the structure of the rectifying barrier in the forming process, notably by formation during the initial forming of a metal--semiconductor contact of the Schottky barrier type, and during subsequent forming of a p-n junction. It is noted that semiconductor diodes of GaAs with a switching charge  $< 3-5 \text{ nano-coulomb}$  can be produced by forming. A. Ye.

1/1



U.S.S.R.

UDC 669.14.018.8:621.762

SHAPIRO, YU. L., POLTORATSKIY, N. I., TITOV, S. G., and BYVSHIKH,  
M. I., Podol'sk

"Pressing and Vacuum Sintering of Powder of Type Kh18N15 Stain-  
less Steel"

Poroshkovaya Metallurgiya, No 3, Mar 71, pp 31-35

Abstract: In a continuation of earlier works, the authors study the next production batch of austenitic stainless steel powder. The principal properties, cold pressing, melting and isothermal sintering in a vacuum of powder produced by reduction of the oxides with calcium hydride were studied. The larger fractions of the powder had significantly greater specific surface and lower bulk density than the finer fractions, resulting from the complex shape and porosity of the particles. Introduction of a binder decreases and evens the bulk density. Cold pressability increases with decreasing particle size. The powder melts in a vacuum at 1375-1400°C, so vacuum sintering should be performed at 1300°. Final densities of specimens of 70 to 97% can be achieved with sintering at 1300°C by varying powder particle size

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USSR

SHAPIRO, YU. L., et al., Poroshkovaya Metallurgiya, No 3, Mar 71., pp 31-35

from  $-150 \pm 100$  to  $-45^\circ\text{C}$ , specific pressure from 1.6 to 15.2 t/cm<sup>2</sup>, and holding time from 1 to 8 hours. Specific pressure has the greatest influence on final density of material produced and its grain size. The composition of the steel changes little with extended sintering near the solidus point.

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- 61 -

USSR

UDC 669.14.018.8:621.762

SHAPIRO, YU. L., POLTORATSKIY, N. I., TITOV, S. G., and BYVSHIKH, M. I., Podol'sk

"Pressing and Vacuum Sintering of Powder of Type Kh18N15 Stainless Steel"

Poroshkovaya Metallurgiya, No 3, Mar 71, pp 31-35

Abstract: In a continuation of earlier works, the authors study the next production batch of austenitic stainless steel powder. The principal properties, cold pressing, melting and isothermal sintering in a vacuum of powder produced by reduction of the oxides with calcium hydride were studied. The larger fractions of the powder had significantly greater specific surface and lower bulk density than the finer fractions, resulting from the complex shape and porosity of the particles. Introduction of a binder decreases and evens the bulk density. Cold pressability increases with decreasing particle size. The powder melts in a vacuum at 1375-1400°C, so vacuum sintering should be performed at 1300°. Final densities of specimens of 70 to 97% can be achieved with sintering at 1300°C by varying powder particle size 1/2

USSR

SHAPIRO, YU. L., et al., Poroshkovaya Metallurgiya, No 3, Mar 71, pp 31-35

from -150+100 to -45 $\mu$ , specific pressure from 1.6 to 15.2 t/cm<sup>2</sup>, and holding time from 1 to 8 hours. Specific pressure has the greatest influence on final density of material produced and its grain size. The composition of the steel changes little with extended sintering near the solidus point.

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1/2 032 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--EXPERIMENTAL EVALUATION OF LAGRANGIAN TURBULENCE TIME SCALE -U-  
AUTHOR-(03)-BYZOVA, N.L., GARGER, YE.K., IVANOV, V.N. **B**  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I ODEANA,  
VOL VI, NO 6, 1970, PP 547-555  
DATE PUBLISHED-----70  
SUBJECT AREAS--ATMOSPHERIC SCIENCES  
TOPIC TAGS--EULER EQUATION, LAGRANGE EQUATION, ATMOSPHERIC TURBULENCE,  
TURBULENT MIXING, ATMOSPHERIC STRATIFICATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/0547 STEP NO--UR/0362/70/006/006/0547/0555  
CIRC ACCESSION NO--AP0132733  
UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132733

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. EXPERIMENTAL DATA ON THE CHARACTERISTICS OF TURBULENCE IN LAGRANGIAN VARIABLES ARE PARTICULARLY IMPORTANT FOR EVALUATING TURBULENT MIXING AND DIFFUSION IN FLOWS WHERE THE GRADIENTS OF MEAN HYDRODYNAMIC FIELDS ARE ABSENT OR ARE SMALL. IN PARTICULAR, SUCH A PROBLEM ARISES IN THE BOUNDARY LAYER OF THE ATMOSPHERE IN EVALUATING DIFFUSION IN THE HORIZONTAL PLANE. IN THIS PAPER LAGRANGIAN AND EULERIAN TURBULENCE CHARACTERISTICS AT AN ALTITUDE OF ABOUT 100 M ARE EVALUATED FROM SIMULTANEOUS LAGRANGIAN AND EULERIAN MEASUREMENTS. COMPARISON OF THE VALUES OF DISSIPATION OF TURBULENT ENERGY OBTAINED FROM DATA IN THE INERTIAL RANGE USING THESE TWO INDEPENDENT METHODS REVEALED A GOOD AGREEMENT. THE LAGRANGIAN TIME SCALE WAS EVALUATED BY DIFFERENT METHODS AND THE RESULTS WERE QUITE CLOSE. THE AUTHORS DERIVE THE EXPERIMENTAL DEPENDENCE OF THE LAGRANGIAN TIME SCALE ON STRATIFICATION. FACILITY: INSTITUTE OF EXPERIMENTAL METEOROLOGY.

UNCLASSIFIED

USSR

B

UDC 621.396.6-181.5(088.8)

BZHGOVSKIY, M. G., RUKAVISHNIKOV, V. V., KRYLOVA, V. Ye., SHAL'NOV, S. N.

"A Device for Welding Bulk Conductors to the Contact Areas of Solid Circuits"

USSR Author's Certificate No 259208, Filed 26 Jun 68, Published 29 Apr 70 (from  
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V166 P)

Translation: A device is proposed for welding bulk conductors to the contact areas of microcircuits. To simplify the operation, increase productivity and improve welding quality, the holder fork and welding electrode are fastened to two levers which are interconnected and move simultaneously, the travel of these levers being varied by means of a regulating screw.

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- 183 -

USSR

UDC 624.9.C71.2.C4

CHADAYEV, V. K., NIIsbesttsement/Scientific Research Institute of Asbestos  
and Cement/, Moscow

"Designing a Suspended Roof With the Use of Rigid Guys"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 3, June 1973,  
pp 45-49

Abstract: A description is given of the design and calculation of the covering of the 1800-seat theater located on the Leninskiy Prospekt in Moscow. The auditorium roof was suspended on a system of rigid guys, supported on an oval reinforced-concrete contour. The technical and economic factors involved in the designing of this structure are presented. 8 figures. 2 tables. 1 reference.

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USSR

CHABAN, A. A.

"Interaction of Sound Waves in a Variable Electric Field"

Leningrad, Fizika Tverdogo Tela, No 12, Dec 71, pp 3505-3507

Abstract: It is shown that a new type of nonlinear acoustoelectric interaction arises in semiconducting piezoelectrics in the presence of a variable electric field. If two sound waves propagate at an arbitrary angle with respect to one another so that synchronism conditions for generation of waves of sum or difference frequency by them are not satisfied, a fairly intense elastic wave may still be generated with a wave vector equal to the sum or difference of the wave vectors of the initial waves when a variable electric field of a certain frequency is applied to the crystal. As compared with ordinary paramagnetic interaction when conditions of synchronism are fulfilled, this interaction is distinguished by a factor on the order of the ratio of the drift rate of the carriers in the variable electric field to the speed of sound. Several restrictions are imposed to simplify the solution of the problem of obtaining a quantitative estimate of the phenomena. The propagation of sound waves in crystals having a  
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CHABAN, A. A., Fizika Tverdogo Tela, No 12, Dec 71, pp 3505-3507

wurtzite structure is discussed in particular. This restricts the discussion to the case of transverse waves which propagate at an angle of  $90^\circ$  to the axis of symmetry and a displacement which occurs only along the axis of symmetry, so that the crystal may be considered as isotropic in terms of elastic properties in this formulation of the problem. It is shown that the effect can be very great, and it is concluded that an external variable electric field can be a powerful synchronization factor in the interaction of intersecting sound waves.

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USSR

UDC 539.434:669.094:083.4

KUSLITSKIY, A. B., CHABAN, D. V., and MIKHEYEV, A. A., L'vov and Moscow

"Comparative Effect of Vacuum, Electroslog, and Electron-Beam Remeltings on the Fatigue of High-Strength Steels"

Moscow, Izvestiya Akademii Nauk SSSR Metally, No 1, Jan/Feb 74, pp 115-117

Abstract: The mechanical properties, particularly fatigue strength, of high-strength steels 30KhGSNA, EI643 a(40KhGSN3VA), and VKS-1 (42Kh2GSNFA), close in composition and structure, were studied. The steels had been originally produced by electric-arc melting and then remelted in either a vacuum-arc furnace (vacuum-arc remelting (VAR), or by the electroslog or electron-beam methods. Electroslog and electron-beam remelting were the best for achieving a high fatigue strength, with steel EI643 being the best of the three and VKS-1 the next best (82-83 kg/mm<sup>2</sup> and 73.0-73.5 kg/mm<sup>2</sup>, respectively. However, steel 30KhGSNA had the best endurance life, registering 47.4 cycles before failure (electron-beam melted) and EI643 having the lowest endurance (41.4 cycles to failure). Two figures, two tables, three bibliographic references.

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USSR

UDC 632.952:635.342

CHABAN, V. S., Ukrainian Scientific Research Institute for Plant Protection

"Use of Fungicides to Combat Club-foot of Cabbage on Peat Bogs"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 9(107), 1972, pp 32-34

**Abstract:** This experiment was conducted in the hope of finding an effective replacement for TMTD (Tetramethylthiuram Disulfide), and compounds mercury. Peat soil from the Irpen flood plain (Kiev Oblast) was placed in 2.5 kilogram containers. The fungicides 50% cineb and 75% polycarbacin were applied in two series of experiments, one before planting, the other at the time of transplanting seedlings. Fifty percent TMTD was used as the standard. The fungicides were applied in a water suspension, 0.4 to 0.7 grams per kilogram of soil. To determine the optimum time of application some containers were treated on the day of planting while others were treated 5, 10, 15, and 20 days later. Twenty-five seeds of the cabbage variety Dymerskaya 7 were planted in each container. Moisture was held at 70% of saturation, and the standardized conditions for soil culture experiments were observed. In the transplanting time experiments applications were made of 50% cineb, zinc ethylenebis(dithiocarbamate) 75% polycarbacin and 20% PCNB (pentachloronitrobenzene) in doses 1/2

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CHABAN, V. S., Khimiya v Sel'skom Khozyaystve, Vol 10, No 9(107), 1972, pp 32-34

of 0.25, 0.50, 1.0 and 1.5 grams per 2.5 kg container. Previously grown healthy seedlings were placed four to a container and grown for 30 and 60 days. This experiment was repeated four times. Results indicated that cineb in 0.7 gram dosage at planting time prevented club-foot disease. Policarbacin was more effective than the standard TMTD but reduced germination. Cineb was also highly effective in the transplant experiment and had no retarding effects. Policarbacin could be used only in 0.25 dosage due to its retarding effect, while PCNB greatly reduced the disease at a dosage of 1.0-1.5 grams per container.

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USSR

UDC 621.372

CHABDAROV, Sh. M.

"On the Effectiveness of Adaptive Frequency Selection"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1970, vyp. 129, pp 18-24 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7A60)

Translation: The effectiveness of adaptive selection of signals with respect to the frequency of the duty cycle of radio pulses is evaluated from the change in the probability of proper reception of an information symbol when interference appears in the time base of the packet being received. In this connection, both the possibility that the entire packet as a whole will be affected and the possibility that its individual components -- the informational group or the pedestal group (the pulses with respect to which the selector is adjusted) -- will be affected are taken into account. A condition of optimum adaptive selection for different signal and interference amplitudes is derived. One illustration, bibliography of two titles. N. S.

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USSR

UDC 576.8.097.29:582.288/:595.42

CHABRA, K. S., Ukrainian Academy of Agriculture

"The Effects of Fusariotoxin on the Population Dynamics of the Mite *Tetranychus telarius*"

Kiev, Mikrobiologicheskii Zhurnal, Vol 33, No 4, Jul/Aug 71, pp 498-502

Abstract: The effects of fusariotoxin derived from *Fusarium sporotrichiella* on the population dynamics of the mite *Tetranychus telarius* bred on *Phaseolus vulgaris* plants in a greenhouse were studied. The plants were sprayed with the toxin in concentrations of 0.01, 0.02, and 0.03%. Ten days after spraying, the mite population was reduced by 61.4, 73.9, and 78.4% vs. controls (toxin in 0.01, 0.02, and 0.03% concentrations, respectively). The corresponding values 15 days after spraying were 43.0, 82.8, and 91.5% respectively - i.e., the effect of the toxin in the lowest concentration weakened, while it persisted at concentrations of 0.02-0.03%. It had been established in earlier work that the toxin has a strong sterilizing effect on females. The results of the present investigation indicated that it also interferes with all physiological processes affecting metamorphosis. The distribution of the mite population with respect to metamorphosis stages was changed to different degrees depending on the fusariotoxin concentration applied.

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Organometallic Compounds

USSR

UDC 547.26.112

KAMAY, G. Kh., USULAVA, M. K., GEGAURI, R. D., INDENIYA, M. A., CHACHABA,  
G. N., Tbilisi State University

"Concerning Some Esters of Arsenous Acid"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol. 61, No. 1, 1971,  
pp 61-64

Abstract: The tri-sec-alkyl esters of arsenous acid, as prepared from arsenous acid anhydride and secondary alcohols, were investigated. A suspension of a arsenous acid anhydride in a mixture of the secondary alcohol in n-octane was heated. The resulting tri-sec-alkylarsenites then react with acetic acid anhydride to form dialkoxarsinacetates. Tri-sec-alkylarsenites also react with acetyl chloride. Di-sec-alkoxyarsinacetates and especially di-sec-alkylarsinous acid chloride are vacuants. The physical constants of eight compounds are presented.

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USSR

CHACHANIDZE, V. G.

"Synthesis of Logic Automata (K-1, K-P poles) in One Version of Homogeneous Structures"

Aktual'n. Vopr. Tekhn. Kibernetiki [Pressing Problems of Engineering Cybernetics -- Collection of Works], Moscow, Nauka Press, 1972, pp 189-194  
(Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V404).

Translation: Algorithms are suggested for synthesis of logic automata in a homogeneous machine structure consisting of a matrix with small ( $10 \times 10$ ) and large numbers of elements.

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USSR

GABASHVILI, N. V., KIRIYA, T. A., CHACHASHVILI, A. G., CHKHAIDZE, L. L.

"Use of Methods of Mathematical Programming for Optimization of Drilling Modes"

Primeneniye Metodov Matematicheskogo Programirovaniya dlya Optimizatsii Rezhimov Bureniya [English Version Above], Tbilisi, Metsniyereba Press, 1971, 96 pages, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V480 K).

NO ABSTRACT.

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UDC 547.26'119

GIGAURI, R. D., CHACHAVA, G. N., CHERNOKAL'SKIY, B. D., UGULOVA, M. M.,  
Tbilisi State University; Kazan' Institute of Chemical Technology imeni S. M.  
Kirov

"Synthesis of Diphenylalkylarsines"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1537-1540

Abstract: The effect of Grignard's reagent on diphenylarsine oxide was studied. It was found that this reaction produces diphenylalkylarsines in low yields. Phenylmagnesium bromide reacted with arsenous acid anhydride to give diphenylchloroarsine in high yield after dissociation with excess hydrochloric acid. Grignard's reagent acted on diphenylchloroarsine to give the corresponding diphenylalkylarsines. The mean atomic refraction of arsenic in diphenylalkylarsines was calculated. It was found that in these compounds  $AR_{\text{As}} = 12.10$ .

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USSR

UDC 547.26.119

KAMAY, G. KH., USULAVA, M. N., SIGAURI, R. D., INDEMIYA, M. A.,  
CHACHAVA, G. E., Tbilisi State University

"Some Esters of Arsenous Acid"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 61,  
No 1, Jan 71, pp 51-54

Abstract: The authors studied the reaction of some secondary alcohols and arsenic trioxide, as well as properties of the resultant esters. Heating of an arsenic trioxide suspension in an alcohol-octane mixture gives tri-sec.-alkyl arsenites. The latter react with acetic anhydride to give dialkoxarsinoacetates and two esters of acetic acid. Tri-sec.-alkyl arsenites react with acetyl chloride to give acid chlorides of di-sec.-alkylarsenous acid. The article lists properties of the resultant compounds.

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Organometallic Compounds

USSR

UDC 546.26'11

GIGAURI, R. D., CHACHAVA, G. N., CHERNOKAL'SKIY, B. D., and UGULAVA, M. M.,  
Tbilisi State University and Kazan' Chemical Technological Institute Imeni  
S. M. Kirov

"Synthesis of Diphenylmethylalkylarsonium Perchlorates"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 835-836

Abstract: To a solution of 2.0 g of diphenylmethylylarsonium iodide in a 1:1 mixture of acetone and distilled water, aqueous solution of 2.2 g of magnesium perchlorate was added. The reaction mixture was left standing for 24 hrs at room temperature precipitating diphenylamylarsonium perchlorate which after washing, drying and recrystallization from ethanol melted at 59-60°. A series of homologous compounds was synthesized by this reaction.

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1/2 028 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--SOME VARIANTS OF NORMAL AND PATHOLOGICAL FETAL  
ELECTROENCEPHALOGRAMS -U-  
AUTHOR-(03)-CHACHAVA, K.V., DEVDARIANI, M.G., LOLADZE, A.S.  
COUNTRY OF INFO--USSR  
SOURCE--VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR, VOL 25, NO 2, 1970 PP  
62-66  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--EMBRYOLOGY, ELECTROENCEPHALOGRAPHY, ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1986/0732

STEP NO--UR/0248/70/025/002/0062/0066

CIRC ACCESSION NO--AP0102700

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102700

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. 1. BY APPLYING ELECTRODES DIRECTLY ON THE HEAD OF THE FETUS AND IMMOBILIZING THEM IT IS POSSIBLE TO RECORD THE ACTION CURRENTS OF THE FETAL BRAIN DURING LABOR. THE RECORDING OBTAINED FURNISHES SUFFICIENT INFORMATION ABOUT THE FUNCTIONAL STATE OF THE FETAL CENTRAL NERVOUS SYSTEM. 2. THE FETAL EEG IS VERY DIFFERENT WITH PHYSIOLOGICAL LABOR FROM THE EEG DURING COMPLICATED LABOR, AND IT IS CHARACTERIZED BY LOW VOLTAGE AND ABSENCE OF PATHOLOGICAL OUTPUT. 3. IN THE CASE OF COMPLICATED DELIVERY, THE AMPLITUDE OF PATHOLOGICAL ACTIVITY IS HIGHER THAN NORMAL. THE PATHOLOGICAL ACTIVITY MAY BE CONSTANT OR PERIODIC. THE DURATION OF PAROXYSMS AND FREQUENCY MAY BE INDICATIVE OF THE SEVERITY OF THE FETAL STATE.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--INFLUENCE OF THE SHORT TERM ACTION OF ULTRASOUND DURING TEMPERING  
ON THE PROPERTIES OF STEEL R6M3F2 -U-  
AUTHOR-(02)-CHACHIN, V.N., SKRIPNICHENKO, A.L.

COUNTRY OF INFO--USSR C

SOURCE--VESTSI AKAD NAUVK BELARUS. SSR, SER. FIZ.-TEKH. NAUVK 1970, (1),  
92-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ULTRASONIC EFFECT, MECHANICAL STRENGTH, MAGNETIC EFFECT, ALLOY  
STEEL, STEEL TEMPERING, AUSTENITIC STEEL, STEEL HARDNESS, MARTENSITIC  
STEEL/(U)D16T ALLOY, (U)R6M3F2 STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1988/0574

STEP NO--UR/0201/70/000/001/0092/0095

CIRC ACCESSION NO--AP0105559

UNCLASSIFIED



2/2 028

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105559

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE MAGNETIC AND STRENGTH CHARACTERISTICS WERE DETD. OF THE TITLE STEEL PREPD. BY CONVENTIONAL TECHNIQUES. THE TEMPERING TEMP. UNDER STD. CONDITIONS AND WITH ULTRASOUND WAS 560DEGREES. THE INTRODUCTION OF ULTRASOUND INTO KNO SUB3 MELT, IN WHICH THE SAMPLES WERE TEMPERED, WAS ACCOMPLISHED BY A CYLINDRICAL CONCENTRATOR OF ALLOY D16T. THE HARDNESS OF THE STEEL TESTED AFTER TEMPERING WAS 836 HV. THE INCREASED HARDNESS OF THIS STEEL AFTER TEMPERING IS ASSOCD. WITH THE DISPERSION HARDENING BY MARTENSITE AT 560DEGREES, OWING TO THE FORMATION OF FINELY DISPERSED CARBIDES AND A DECREASE IN RESIDUAL AUSTENITE. THE INTRODUCTION OF ULTRASOUND SPEEDS UP THESE PROCESSES, AND IT CAUSES THE GIVEN HARDNESS TO BE REACHED APPROX. TWICE AS FAST AS DURING CONVENTIONAL TEMPERING. THE INCREASE IN MAGNETIC SATN. IS CAUSED BY THE DECOMP. OF THE RESIDUAL AUSTENITE, SINCE AUSTENITE IS THE NONMAGNETIC STRUCTURAL COMPONENT. INTRODUCTION OF ULTRASOUND RESULTS IN REDUCED AMT. OF RESIDUAL AUSTENITE. THE CHANGE IN ELEC. RESISTIVITY OF STEEL R6M3F2 AS DEPENDENT ON THE DURATION OF TEMPERING WITH ULTRASOUND AND ON ADDNL. TEMPERING UNDER STD. CONDITIONS WAS ALSO STUDIED, AS WAS THE CHANGE IN IMPACT STRENGTH AND FLEXURE STRENGTH AS DEPENDENT ON THE SAME PARAMETERS SHORT TERM ULTRASONIC ACTION AND THE SUBSEQUENT ADDNL. TEMPERING UNDER STD. CONDITIONS INTENSIFY THE CHANGES WHICH OCCUR IN STEEL R6M3F2 DURING TEMPERING.

UNCLASSIFIED

USSR

UDC 51:621.391

~~CHACHKHIANI, M. N.~~

"Use of Hamming Code to Increase Reliability of Devices for Storage and Transmission of Information"

Vopr. Razrab. I Vendrenaya Sredstv. Vychisl. Tekhn., [Problems of Development and Introduction of Computer Equipment--Collection of Works], Tbilisi, 1970, pp 28-32, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V492).

No Abstract.

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